Dell™ Vostro™ 1510
Service Manual

Model PP36L

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates potential for property damage, personal injury, or death.

If you purchased a DELL™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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Before Working on Your Computer

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This document provides procedures for removing and installing the components in your computer. Unless otherwise noted, each procedure assumes that:

- You have performed the steps in Before Working on Your Computer.
- You have read the safety information that shipped with your computer.
- When replacing a component, you have already removed the original, if installed.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Small plastic scribe
- Flash BIOS update (see the Dell Support website at **support.dell.com**)

What You Need to Know for Your Safety

Use the following safety guidelines to help protect your computer from potential damage and to help ensure your own personal safety.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

NOTICE: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

NOTICE: When disconnecting a cable, pull on the cable's connector or on its strain-relief loop, not on the cable itself. For cable connectors with locking tabs, press inward on the locking tabs to release the connector. When connecting a cable, ensure that the connectors are correctly oriented and aligned to avoid damage to the connector and/or the connector's pins.

1. Ensure that the work surface is flat and clean to prevent the computer cover from being scratched.
2. Shut down your computer.
   - In Windows XP, click **Start**→ **Shutdown**→ **Shutdown**.
   - In Windows Vista, click **Start** , click the arrow icon, and then click **Shut Down** to turn off your computer.

   NOTE: Ensure that the computer is off and not in a power management mode. If you cannot shut down the computer using the operating system, press and hold the power button for 4 seconds.
3. Disconnect your computer and all attached devices from their electrical outlets.

NOTICE: To disconnect a network cable, first unplug the cable from your computer, and then unplug it from the network wall jack.

4. Disconnect any telephone or network cables from the computer.
5. Remove any installed cards from the ExpressCard slot and the 8-in-1 memory card reader.

NOTICE: To help prevent damage to the system board, you must remove the battery from the battery bay before you service the computer.

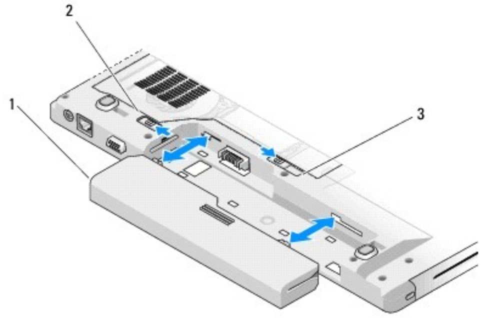
NOTE: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

6. Turn the computer upside down.

7. Slide the battery lock to the open position.

8. Slide the battery release latch to the open position. (You may need to hold the battery release latch in the open position while removing the battery.)

9. Slide the battery out of the battery bay.



1	battery	2	battery lock
3	battery latch release		

10. Turn the computer top-side up, open the display, and press the power button to ground the system board.

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Flashing the BIOS

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If a BIOS-update program media, such as a CD, is provided with a new system board, flash the BIOS from the media. If you do not have a BIOS-update program media, see Flashing the BIOS From the Hard Drive.

Flashing the BIOS From a CD

NOTICE: Connect the AC adapter to an electrical outlet that is known to be working properly to prevent a loss of power. Failure to do so may cause system damage.

1. Ensure that the AC adapter is connected to an electrical outlet and that the main battery is installed properly.
2. Start your computer.
3. Press the eject button at the front of the optical drive to open the drive tray.
4. Place the BIOS-update CD in the center of the drive tray, then gently push to close the tray.
5. Restart the computer.
6. When the DELL logo appears, press <F12> immediately.

   NOTE: Keyboard failure may result when a key on the keyboard is held down for extended periods of time. To avoid possible keyboard failure, press and release <F12> in even intervals until the **Boot Device Menu** appears.

   If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop, then shut down your computer and try again.

7. At the **Boot Device Menu**, use the up- and down-arrow keys or press the appropriate number on the keyboard to highlight **CD-ROM**, and then press <Enter>.

   NOTE: The Quickboot feature changes the boot sequence for the current boot only. Upon restart, the computer boots according to the boot sequence specified in system setup.

NOTICE: Do not interrupt this process once it begins. Doing so may cause system damage.

8. Follow the instructions that appear on the screen. The computer continues to boot and updates the new BIOS. When the flash update is complete, the computer automatically reboots.
9. Remove the flash BIOS update program CD from the drive.

Flashing the BIOS From the Hard Drive

NOTICE: Connect the AC adapter to an electrical outlet that is known to be working properly to prevent a loss of power. Failure to do so may cause system damage.

1. Ensure that the AC adapter is connected to an electrical outlet, that the main battery is properly installed, and that a network cable is attached.
2. Start the computer.
3. Locate the latest BIOS update file for your computer at **support.dell.com**.
4. Click **Download Now** to download the file.
5. If the **Export Compliance Disclaimer** window appears, click **Yes, I Accept this Agreement**.

6. In the **File Download** window, click **Save this program to disk**, and then click **OK**.
7. In the **Save In** window, click the down arrow to view the **Save In** menu, select **Desktop**, and then click **Save**.

   The file downloads to your desktop.

8. Click **Close** if the **Download Complete** window appears.

   The file icon appears on your desktop and is titled the same as the downloaded BIOS update file.

9. Double-click the file icon on the desktop and follow the instructions on the screen.

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Internal Card With Bluetooth® Wireless Technology

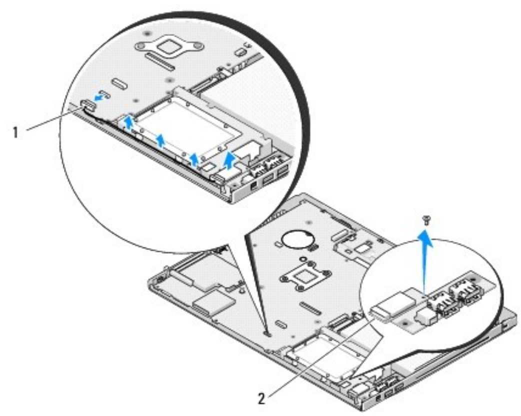
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CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

If you ordered a card with Bluetooth wireless technology with your computer, the card is already installed.

Removing the Card

1. Follow the procedures in Before Working on Your Computer.
2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the hinge cover (see Removing the Hinge Cover).
5. Remove the keyboard (see Removing the Keyboard).
6. Remove the display assembly (see Removing the Display Assembly).
7. Remove the palm rest (see Removing the Palm Rest).
8. Remove the M2 x 3-mm screw that connects the card to the USB board.
9. Lift the card and cable and disconnect the card connector from the card.
10. Remove the card from the card compartment.



1	card cable connector	2	card

Replacing the Card

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Card.

1. Connect the cable to the card.

2. Replace the card in the card compartment.

3. Replace the M2 x 3-mm screw that connects the card to the USB board.

4. Replace the palm rest (see Replacing the Palm Rest).

5. Replace the display assembly (see Replacing the Display Assembly).

6. Replace the keyboard (see Replacing the Keyboard).

7. Replace the hinge cover (see Replacing the Hinge Cover).

8. Replace the WLAN card (see Replacing a WLAN Card).

9. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

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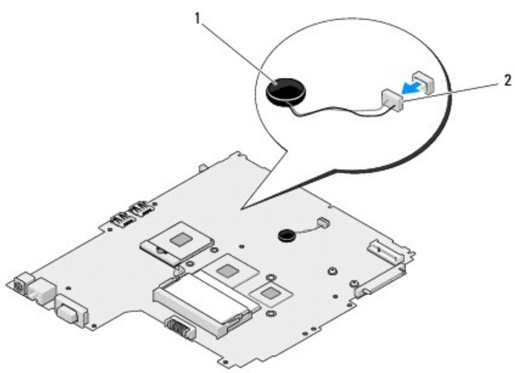
Coin-Cell Battery

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Removing the Coin-Cell Battery

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

1. Follow the procedures in Before Working on Your Computer.
2. Remove the hard drive (see Removing the Hard Drive).
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the fan (see Removing the Fan).
5. Remove the hinge cover (see Removing the Hinge Cover).
6. Remove the keyboard (see Removing the Keyboard).
7. Remove the display assembly (see Removing the Display Assembly).
8. Remove the palm rest (see Removing the Palm Rest).
9. Remove the optical drive (see Removing the Optical Drive).
10. Remove the system board (see Removing the System Board Assembly).
11. Disconnect the coin-cell battery cable connector from the system board.
12. Lift the coin-cell battery from the system board.



1	coin-cell battery	2	coin-cell battery cable connector

Replacing the Coin-Cell Battery

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Coin-Cell Battery.

1. Connect the coin-cell battery cable to the system board.
2. Position the coin-cell battery on the system board.
3. Replace the system board (see Replacing the System Board Assembly).
4. Replace the optical drive (see Replacing the Optical Drive).
5. Replace the palm rest (see Replacing the Palm Rest).
6. Replace the display assembly (see Replacing the Display Assembly).
7. Replace the keyboard (see Replacing the Keyboard).
8. Replace the hinge cover (see Replacing the Hinge Cover).
9. Replace the fan (see Replacing the Fan).
10. Replace the WLAN card (see Replacing a WLAN Card).
11. Replace the hard drive (see Replacing the Hard Drive).

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Processor Module

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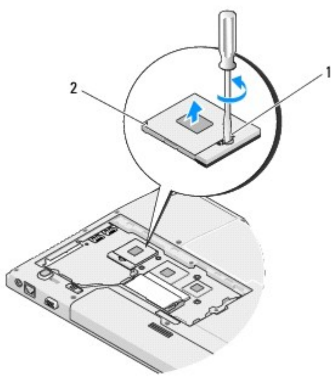
Removing the Processor Module

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Loosen the two screws that secure the memory cover. (See Removing a Memory Module for an illustration of the memory cover.)
3. Slide the cover out of the compartment and set it aside.
4. Remove the fan (see Removing the Fan).
5. Remove the processor thermal-cooling assembly (see Removing the Processor Thermal-Cooling Assembly).

NOTICE: To avoid damage to the processor, hold the screwdriver so that it is perpendicular to the processor when turning the cam screw.

6. To loosen the ZIF socket, use a small, flat-blade screwdriver and rotate the ZIF-socket cam screw counterclockwise until it comes to the cam stop.



1	ZIF-socket cam screw	2	ZIF socket

NOTICE: To ensure maximum cooling for the processor, do not touch the heat transfer areas on the processor thermal-cooling assembly. The oils in your skin can reduce the heat transfer capability of the thermal pads.

NOTICE: When removing the processor module, pull the module straight up. Be careful not to bend the pins on the processor module.

7. Lift the processor module from the ZIF socket.

Replacing the Processor Module

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

NOTICE: Do not touch the processor die. Press and hold the processor down on the substrate on which the die is mounted while turning the cam screw to prevent intermittent contact between the cam screw and processor.

NOTICE: Ensure that the cam lock is in the fully open position before seating the processor module. Seating the processor module properly in the ZIF socket does not require force. A processor module that is not properly seated can result in an intermittent connection or permanent damage to the microprocessor and ZIF socket.

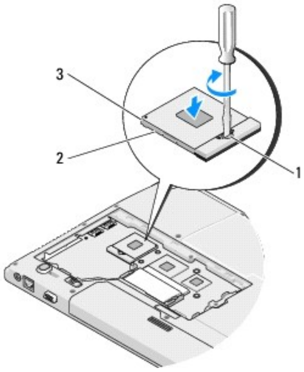
NOTE: If you are installing a new processor, you will receive a new thermal-cooling assembly which will include an affixed thermal pad, or you will receive a new thermal pad along with a tech sheet to illustrate proper installation.

This procedure assumes that you have completed the removal procedure Removing the Processor Module.

1. Align the pin-1 corner of the processor module with the pin-1 corner of the ZIF socket, then insert the processor module.

   NOTE: The pin-1 corner of the processor module has a triangle that aligns with the triangle on the pin-1 corner of the ZIF socket.

   When the processor module is properly seated, all four corners are aligned at the same height. If one or more corners of the module are higher than the others, the module is not seated properly.



1	ZIF-socket cam screw	2	ZIF socket
3	pin-1 corner		

NOTICE: To avoid damage to the processor, hold the screwdriver so that it is perpendicular to the processor when turning the cam screw.

2. Tighten the ZIF socket by turning the cam screw clockwise to secure the processor module to the system board.

3. Replace the processor thermal-cooling assembly (see Replacing the Processor Thermal-Cooling Assembly).

4. Replace the fan (see Replacing the Fan).

5. Replace the memory cover and tighten the screws.

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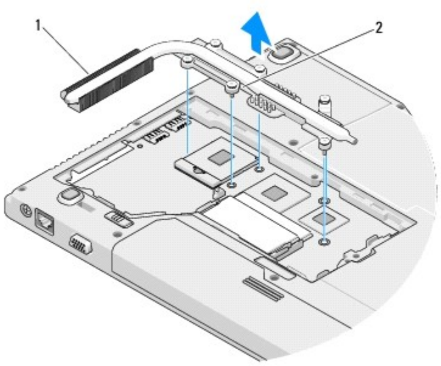
Processor Thermal-Cooling Assembly

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Removing the Processor Thermal-Cooling Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Loosen the two screws that secure the memory cover. (See Removing a Memory Module for an illustration of the memory cover.)
3. Slide the cover out of the compartment and set it aside.
4. Remove the fan (see Removing the Fan).
5. In sequential order, loosen the six captive screws that secure the processor thermal-cooling assembly to the system board, and carefully lift the processor thermal-cooling assembly out of the computer.



1	processor thermal-cooling assembly	2	captive screws (6)

Replacing the Processor Thermal-Cooling Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Processor Thermal-Cooling Assembly.

1. Align the six captive screws on the processor thermal-cooling assembly with the screw holes on the system board and tighten the screws in sequential order.
2. Replace the fan (see Replacing the Fan).
3. Replace the memory cover and tighten the screws.

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USB Daughter Card

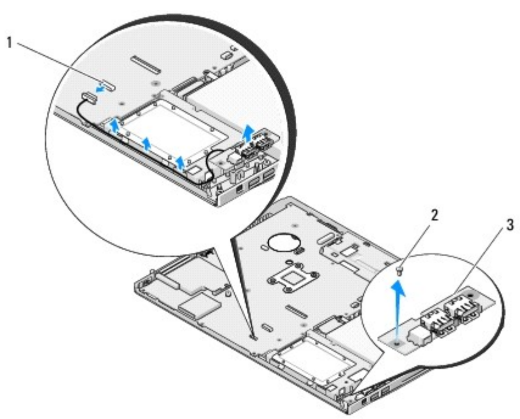
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- Removing the USB Daughter Card
- Replacing the USB Daughter Card

Removing the USB Daughter Card

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the hinge cover (see Removing the Hinge Cover).
5. Remove the keyboard (see Removing the Keyboard).
6. Remove the display assembly (see Removing the Display Assembly).
7. Remove the palm rest (see Removing the Palm Rest).
8. Remove the internal card with Bluetooth wireless technology, if installed (see Removing the Card).
9. Remove the M2.5 x 5-mm screw from the daughter card.
10. Disconnect the daughter-card connector from the daughter card.
11. Remove the daughter card from the computer base.



1	daughter-card connector	2	M2.5 x 5-mm screw (1)
3	USB daughter card		

Replacing the USB Daughter Card

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the USB Daughter Card.

1. Replace the M2.5 x 5-mm screw to secure the daughter card to the computer base.
2. Connect the daughter card connector to the daughter card.
3. Replace the internal card with Bluetooth wireless technology, if installed (see Removing the Card).
4. Replace the palm rest (see Replacing the Palm Rest).
5. Replace the display assembly (see Replacing the Display Assembly).
6. Replace the keyboard (see Replacing the Keyboard).
7. Replace the hinge cover (see Replacing the Hinge Cover).
8. Replace the WLAN card (see Replacing a WLAN Card).
9. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

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Display

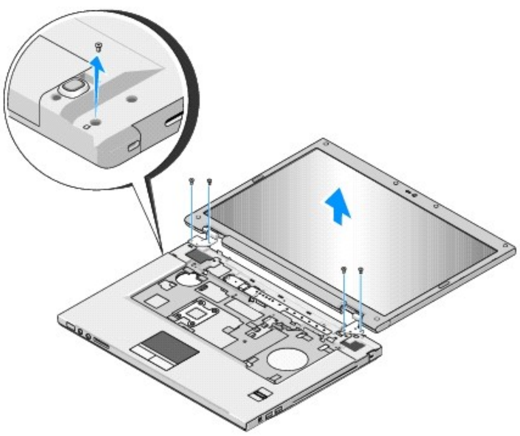
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Display Assembly

Removing the Display Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the M2.5 x 8-mm screw that attaches the display assembly to one corner of the computer.
5. Remove the hinge cover (see Removing the Hinge Cover).
6. Remove the keyboard (see Removing the Keyboard).



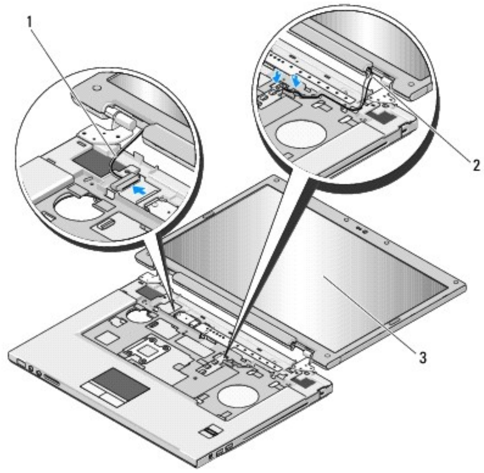
7. In sequential order, remove the four numbered M2.5 x 5-mm screws from the base of the display assembly.
8. Disconnect the display cable from the display cable connector on the system board.
9. Lift the display cable and antenna cables from beneath the tabs on the palm rest.

NOTICE: Ensure that the display cable and the antenna cables do not get caught beneath the plastic tabs on the palm rest.

10. Gently tug on the antenna cables to remove them from underneath the palm rest.

NOTE: The antenna cables are no longer attached to the WLAN card which you removed in step 3 of this procedure. Although the cables are unattached, they can be difficult to remove from underneath the palm rest. You may want to turn the computer upside down and remove the hard drive compartment cover and memory cover in order to have better access to the antenna cables.

11. Lift the display assembly out of the computer.



1	display cable	2	antenna cables
3	display assembly		

Replacing the Display Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Display Assembly.

1. Align the display hinges with the holes in the base of the computer, then lower the display into place.

NOTICE: Ensure that the display cable and antenna cables are properly routed and secured beneath the plastic tabs on the palm rest.

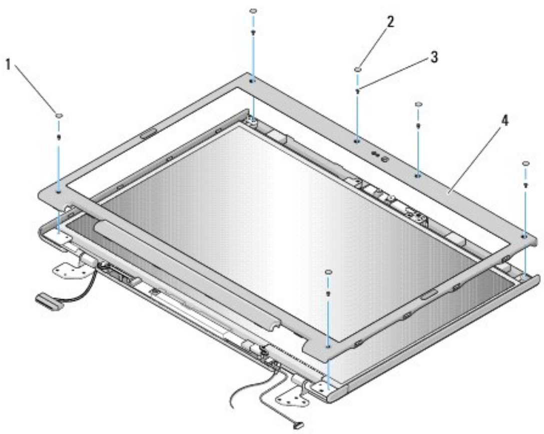
2. In sequential order, replace the four M2.5 x 5-mm screws into the base of the display assembly.
3. Route the display cable and antenna cables beneath the plastic tabs on the palm rest.
4. Slide the antenna cables through the hole in the palm rest and the base of the computer.
5. Connect the display cable to the display cable connector on the system board.
6. In sequential order, replace the four M2.5 x 5-mm screws in the base of the display assembly.
7. Replace the keyboard (see Replacing the Keyboard).
8. Replace the hinge cover (see Replacing the Hinge Cover).
9. Close the display and turn the computer upside down.
10. Replace the M2.5 x 8-mm screw that attaches the display assembly to one corner of the computer.
11. Replace the WLAN card (see Replacing a WLAN Card).
12. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

Display Bezel

Removing the Display Bezel

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the hinge cover (see Removing the Hinge Cover).
5. Remove the keyboard (see Removing the Keyboard).
6. Remove the display assembly (see Removing the Display Assembly).
7. Remove the four rubber display-bumpers and two mylar screw-covers from around the display bezel.
8. Remove the six M2.5 x 5-mm shoulder screws from around the display bezel.



1	mylar screw covers (2)	2	rubber display bumpers (4)
3	M2.5 x 5-mm shoulder screws (6)	4	display bezel

NOTICE: Removal of the bezel from the top cover requires extreme care to avoid damage to the bezel.

9. Starting at the middle bottom of the display panel, use your fingers to separate the bezel from the top cover, then lift the inside edges to separate the remainder of the bezel.

Replacing the Display Bezel

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Display Bezel.

1. Starting at any corner, use your fingers to gently snap the bezel into place to secure it to the top cover.
2. Replace the six M2.5 x 5-mm shoulder screws in the display bezel.
3. Replace the four rubber display bumpers and two mylar screw covers around the display bezel.
4. Replace the display assembly (see Replacing the Display Assembly).
5. Replace the keyboard (see Replacing the Keyboard).

6. Replace the hinge cover (see Replacing the Hinge Cover).

7. Replace the WLAN card (see Replacing a WLAN Card).

8. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

Display Inverter

Removing the Display Inverter

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.

2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

3. Remove the WLAN card (see Removing a WLAN Card).

4. Remove the hinge cover (see Removing the Hinge Cover).

5. Remove the keyboard (see Removing the Keyboard).

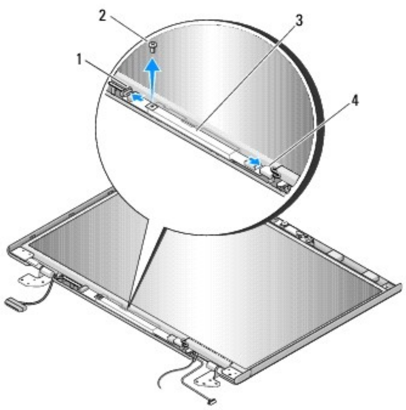
6. Remove the display assembly (see Removing the Display Assembly).

7. Remove the display bezel (see Removing the Display Bezel).

8. Remove the M2 x 3-mm screw from the display inverter.

9. Disconnect the two display-inverter connectors.

10. Lift the display inverter out of the top cover.



1	display inverter connector	2	M2 x 3-mm screw (1)
3	display inverter	4	display inverter connector

NOTICE: Removal of the bezel from the display back cover requires extreme care to avoid damage to the bezel.

Replacing the Display Inverter

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Display Inverter.

1. Connect the two display-inverter connectors to the display inverter.

2. Replace the M2 x 3-mm screw that secures the display inverter.

3. Replace the display bezel (seeReplacing the Display Bezel).

4. Replace the display assembly (see Replacing the Display Assembly).

5. Replace the keyboard (see Replacing the Keyboard).

6. Replace the hinge cover (see Replacing the Hinge Cover).

7. Replace the WLAN card (see Replacing a WLAN Card).

8. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

Display Panel

Removing the Display Panel

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.

2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

3. Remove the WLAN card (see Removing a WLAN Card).

4. Remove the hinge cover (see Removing the Hinge Cover).

5. Remove the keyboard (see Removing the Keyboard).

6. Remove the display assembly (see Removing the Display Assembly).

7. Remove the display bezel (see Removing the Display Bezel).

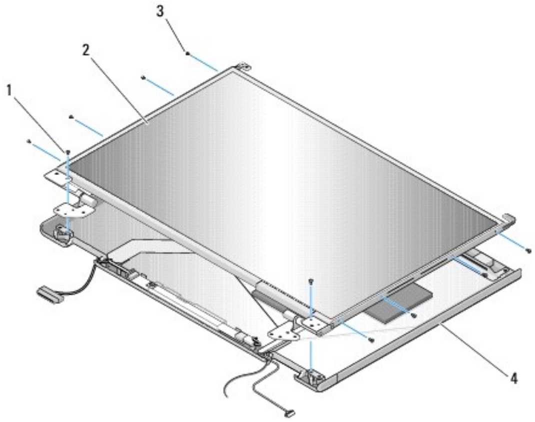
8. Remove the display inverter (see Removing the Display Inverter).

9. Remove the two M2 x 5-mm screws from the display hinges.

10. Remove the camera/microphone assembly (see Removing the Camera and Microphone Assembly).

11. Lift the display panel assembly out of the top cover.

12. Remove the eight M2 x 3-mm screws from the display panel.



1	M2 x 5-mm screws (2)	2	display panel
3	M2 x 3-mm screws (8)	4	top cover

Replacing the Display Panel

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Display Panel.

1. Replace the eight M2 x 3-mm screws in the display panel.
2. Position the display panel assembly in the top cover.
3. Replace the camera/microphone assembly (see Replacing the Camera and Microphone Assembly).
4. Align the guide pins at the top of the display hinge panels and position the display panel in the top cover.
5. Replace the two M2 x 5-mm screws in the hinges.
6. Replace the display inverter (see Replacing the Display Inverter).
7. Replace the display bezel (see Replacing the Display Bezel).
8. Replace the display assembly (see Replacing the Display Assembly).
9. Replace the keyboard (see Replacing the Keyboard).
10. Replace the hinge cover (see Replacing the Hinge Cover).
11. Replace the WLAN card (see Replacing a WLAN Card).
12. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

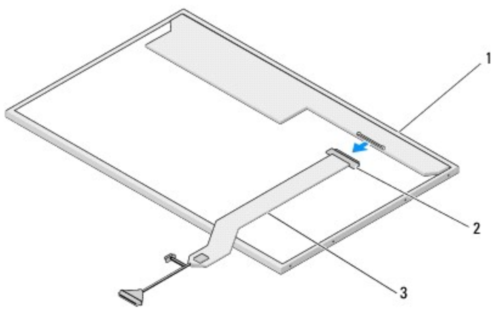
Display Cable

Removing the Display Cable

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the hinge cover (see Removing the Hinge Cover).
5. Remove the keyboard (see Removing the Keyboard).
6. Remove the display assembly (see Removing the Display Assembly).
7. Remove the display bezel (see Removing the Display Bezel).
8. Remove the display inverter (see Removing the Display Inverter).
9. Remove the camera/microphone assembly (see Removing the Camera and Microphone Assembly).
10. Remove the two M2 x 5-mm screws from the hinges.
11. Remove the display panel (see Removing the Display Panel).
12. Lift the display panel out of the top cover.
13. Disconnect the display cable from the connector on the back of the display panel.



1	display panel	2	display cable connector
3	display cable		

Replacing the Display Cable

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Display Cable.

1. Connect the display cable to the connector on the back of the display panel.
2. Align the guide pins at the top of the display hinge panels and position the display panel in the top cover.
3. Replace the two M2 x 5-mm screws in the hinges.
4. Replace the display inverter (see Replacing the Display Inverter).
5. Replace the display bezel (see Replacing the Display Bezel).
6. Replace the display assembly (see Replacing the Display Assembly).
7. Replace the keyboard (see Replacing the Keyboard).
8. Replace the hinge cover (see Replacing the Hinge Cover).
9. Replace the WLAN card (see Replacing a WLAN Card).

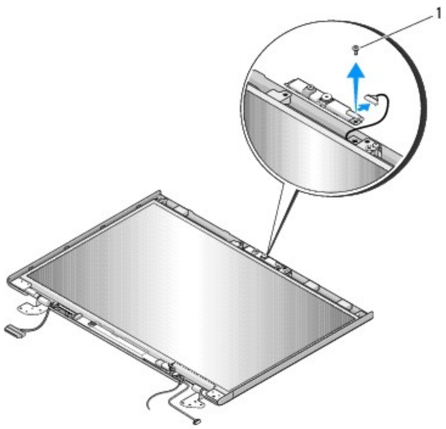
10. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

Camera and Microphone Assembly

Removing the Camera and Microphone Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the hinge cover (see Removing the Hinge Cover).
5. Remove the keyboard (see Removing the Keyboard).
6. Remove the display assembly (see Removing the Display Assembly).
7. Remove the display bezel (see Removing the Display Bezel).
8. Remove the M2 x 3-mm screw that secures the camera/microphone assembly.
9. Lift the camera/microphone out of the top cover and disconnect the camera/microphone cable.



1	M2 x 3-mm screw (1)

Replacing the Camera and Microphone Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Camera and Microphone Assembly.

1. Connect the camera/microphone cable to the connector on the camera/microphone assembly.
2. Position the camera/microphone in the top cover and replace the M2 x 3- mm screw that secures the camera/microphone assembly to the top cover.
3. Replace the display bezel (see Replacing the Display Bezel).
4. Replace the display assembly (see Replacing the Display Assembly).

5. Replace the keyboard (see Replacing the Keyboard).

6. Replace the hinge cover (see Replacing the Hinge Cover).

7. Replace the WLAN card (see Replacing a WLAN Card).

8. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

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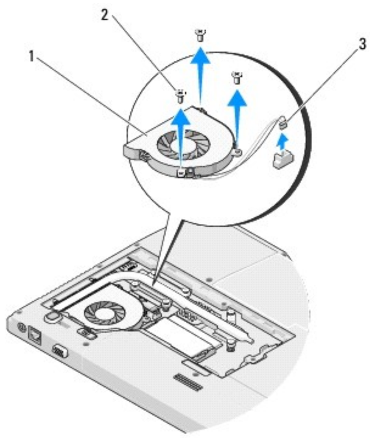
Fan

Dell™ Vostro™ 1510
Service Manual

Removing the Fan

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Loosen the two screws that secure the memory cover. (See Removing a Memory Module for an illustration of the memory cover.)
3. Slide the cover out of the compartment and set it aside.
4. Remove the three M2.5 x 5-mm screws that secure the fan to the base of the computer.
5. Disconnect the fan connector from the system board connector, and remove the fan.



1	fan	2	M2.5 x 5-mm screws (3)
3	fan connector		

Replacing the Fan

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Fan.

1. Align the screw holes on the fan with the holes on the base of the computer.
2. Replace the three M2.5 x 5-mm screws to secure the fan to the base of the computer.
3. Connect the fan connector to the system board connector.
4. Replace the memory cover and tighten the screws.

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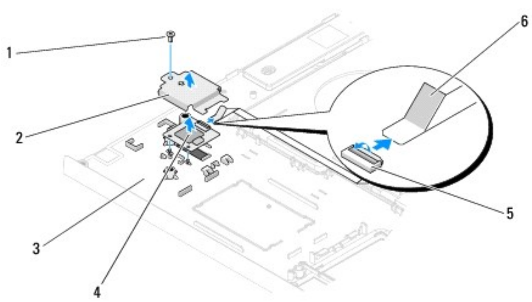
Fingerprint Reader

Dell™ Vostro™ 1510
Service Manual

Removing the Fingerprint Reader

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in [Before Working on Your Computer](#).
2. Remove the hard drive cover. See [Removing the Hard Drive](#) for an illustration of the hard drive cover.
3. Remove the WLAN card (see [Removing a WLAN Card](#)).
4. Remove the hinge cover (see [Removing the Hinge Cover](#)).
5. Remove the keyboard (see [Removing the Keyboard](#)).
6. Remove the display assembly (see [Removing the Display Assembly](#)).
7. Remove the palm rest (see [Removing the Palm Rest](#)).
8. On the underside of the palm rest, remove the M2 x 3-mm screw from the fingerprint reader cover, and lift the fingerprint reader cover out of the palm rest.
9. Rotate the retaining bracket on the fingerprint reader connector on the palm rest upward to release the fingerprint-reader cable connector.
10. Slide the fingerprint reader cable out of the fingerprint reader connector.
11. Remove the fingerprint reader from the palm rest.



1	M2 x 3-mm screw	2	fingerprint reader cover
3	underside of palm rest	4	fingerprint reader
5	fingerprint reader connector with retaining bracket	6	fingerprint reader cable

---

Replacing the Fingerprint Reader

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

NOTICE: Ensure that the touch pad cable and the cable for the internal card with Bluetooth® wireless technology are properly routed before snapping the palm rest into place.

This procedure assumes that you have completed the removal procedure [Removing the Fingerprint Reader](#).

1. Position the fingerprint reader on the underside of the palm rest.

2. Connect the fingerprint reader cable connector to the fingerprint reader connector and rotate the retaining bracket downward to secure the cable.

3. Replace the fingerprint reader cover and replace the M2 x 3-mm screw that secures the cover to the palm rest.

4. Replace the palm rest (see Replacing the Palm Rest).

5. Replace the display assembly (see Replacing the Display Assembly).

6. Replace the keyboard (see Replacing the Keyboard).

7. Replace the hinge cover (see Replacing the Hinge Cover).

8. Replace the WLAN card (see Replacing a WLAN Card).

9. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

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Hard Drive

Dell™ Vostro™ 1510 Service Manual

NOTE: Dell does not guarantee compatibility or provide support for hard drives obtained from sources other than Dell.

Removing the Hard Drive

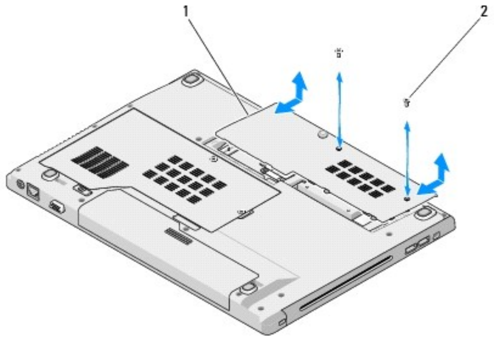
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

CAUTION: Do not touch the metal housing of the hard drive if you remove the hard drive from the computer while the drive is hot.

NOTICE: To prevent data loss, turn off your computer before removing the hard drive. Do not remove the hard drive while the computer is on or in Sleep state.

NOTICE: Hard drives are extremely fragile. Exercise care when handling the hard drive.

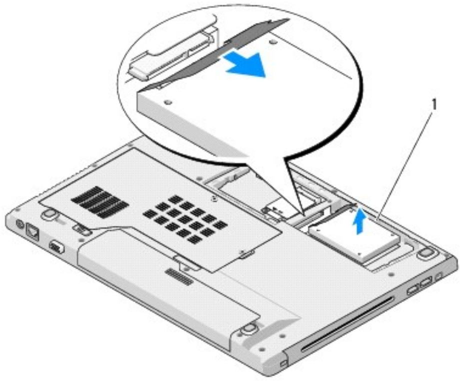
1. Follow the procedures in Before Working on Your Computer, ensuring that you remove the battery.
2. Close the display and turn the computer upside down.
3. Remove the two M2.5 x 8-mm screws that secure the hard-drive compartment cover.
4. Remove the cover and set it aside.



1	hard drive cover	2	M2.5 x 8-mm screws (2)

NOTICE: When the hard drive is not in the computer, store the drive in protective antistatic packaging.

5. Remove the three screws securing the hard drive.
6. Pull the plastic tab to release the hard drive.
7. Lift the hard drive out of the computer.
8. Remove the two screws securing the hard drive to the hard drive bracket.
9. Slide the hard drive out of the bracket.



1	hard drive		

Replacing the Hard Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTICE: Hard drives are extremely fragile. Exercise care when handling the hard drive.

NOTICE: Use firm and even pressure to slide the hard drive into place. Excessive force may result in damage to the connector.

This procedure assumes that you have completed the removal procedure Removing the Hard Drive.

1. Slide the hard drive into the hard drive connector until the drive is fully seated in the bracket.
2. Replace the hard drive bracket into the system.
3. Replace the three screws securing the hard drive.
4. Replace the hard drive cover aligning the notches.
5. Replace the two M2.5 x 8-mm screws to secure the cover.
6. Install the operating system for your computer, as needed. For information on reinstalling the operating system, see the *Setup and Quick Reference Guide for your computer* on ***support.dell.com***.
7. Install the drivers and utilities for your computer, as needed. For information on reinstalling drivers and utilities, see the *Setup and Quick Reference Guide for your computer* on ***support.dell.com***.

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Hinge Cover

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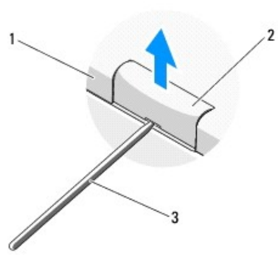
- [Removing the Hinge Cover](#)
- [Replacing the Hinge Cover](#)

Removing the Hinge Cover

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTICE: The hinge cover is fragile and can be damaged if extreme force is used. Exercise care when removing the hinge cover.

1. Follow the procedures in [Before Working on Your Computer](#).
2. Close the display and turn the computer to the back.
3. Insert a plastic scribe into the notch of the raised parts of the hinge cover at the back of the computer, and pry up to loosen the hinge cover.

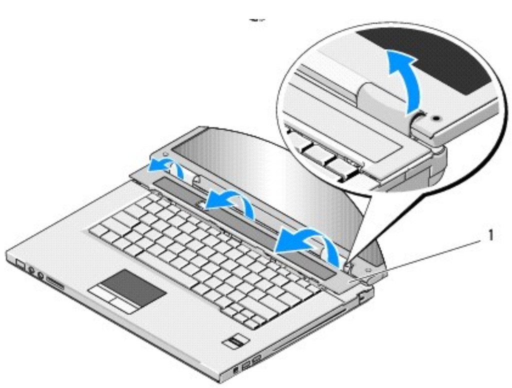


1	back of computer	2	raised part of hinge cover (one on each side)
3	plastic scribe		

4. Turn the computer to the front and open the display all the way (180 degrees).

NOTICE: To avoid damage to the hinge cover, do not lift the cover on both sides simultaneously.

5. Insert a finger or a plastic scribe underneath each side of the raised parts of the hinge cover, and slide your fingers underneath the long part of the hinge cover.
6. Moving from right to left, slide your fingers under the hinge cover to pry up and loosen the cover, and lift the hinge cover away from the computer.



1	raised part of hinge cover on right side

Replacing the Hinge Cover

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTICE: The hinge cover is fragile and can be damaged if extreme force is used. Exercise care when replacing the hinge cover.

This procedure assumes that you have completed the removal procedure Removing the Hinge Cover.

1. Align the two tabs underneath the left edge of the hinge cover with the corresponding notches in the computer.
2. Moving from left to right, press down until the hinge cover snaps into place.
3. Close the display and turn the computer to the back.
4. Press each hinge cover until it snaps into place.

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Keyboard

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Removing the Keyboard

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

1. Follow the procedures in Before Working on Your Computer.
2. Remove the hinge cover (see Removing the Hinge Cover).
3. Remove the two M2 x 3-mm screws at the top of the keyboard.

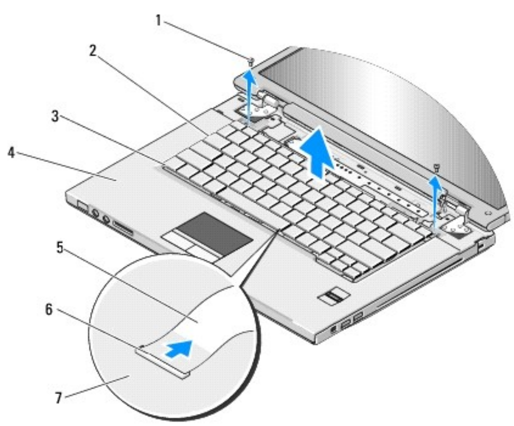
NOTICE: The key caps on the keyboard are fragile, easily dislodged, and time- consuming to replace. Exercise care when removing and handling the keyboard.

NOTE: Lift the keyboard carefully to ensure that you do not pull on the keyboard cable.

4. Lift the top of the keyboard and move it slightly towards the back of the computer to access the keyboard cable connector.
5. Rotate the retaining bracket upward to release the keyboard cable connector.

NOTE: Ensure that you pull on the keyboard cable connector, not the keyboard cable itself.

6. Slide the keyboard cable connector out of the keyboard connector on the system board.



1	M2 x 3-mm screws (2)	2	keyboard
3	tabs (4)	4	palm rest
5	keyboard cable	6	keyboard cable connector
7	system board		

Replacing the Keyboard

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTICE: The key caps on the keyboard are fragile, easily dislodged, and time- consuming to replace. Exercise care when removing and handling the keyboard.

This procedure assumes that you have completed the removal procedure Removing the Keyboard.

1. Slide the keyboard cable connector into the keyboard connector. on the system board.
2. Rotate the retaining bracket downward to secure the keyboard cable connector.
3. Hook the tabs along the front edge of the keyboard beneath the front- inside edge of the palm rest.
4. Press on the upper right edge of the keyboard to snap the keyboard into place.
5. Replace the two M2 x 3-mm screws at the top of the keyboard.
6. Replace the hinge cover (see Replacing the Hinge Cover).

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Battery Latch Assembly

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Removing the Battery Latch Assembly

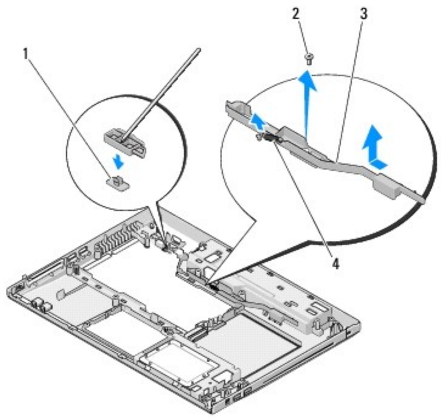
CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the hard drive (see Removing the Hard Drive).
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the fan (see Removing the Fan).
5. Remove the hinge cover (see Removing the Hinge Cover).
6. Remove the keyboard (see Removing the Keyboard).
7. Remove the display assembly (see Removing the Display Assembly).
8. Remove the palm rest (see Removing the Palm Rest).
9. Disconnect the cable that secures the internal card with Bluetooth® wireless technology to the system board (see Removing the Card).
10. Remove the optical drive (see Removing the Optical Drive).
11. Remove the system board (see Removing the System Board Assembly).
12. Remove the battery latch spring.

NOTICE: The battery-latch assembly spring is not secured to the latch assembly and can be easily misplaced. When removing the battery latch assembly, place the spring in a secure location until the latch is ready to be reinstalled.

13. Remove the screw securing the battery latch to the base of the system.
14. Lift the edge of the battery latch.
15. Remove the battery latch from the system.
16. Squeeze the securing clips on the battery lock latch together.
17. Remove the battery lock latch.

NOTICE: Before you remove the battery release button, observe the orientation of the button to ensure proper installation when the button is replaced.



1	battery release button	2	alignment bracket screw (1)
3	battery latch assembly	4	spring

Replacing the Battery Latch Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

NOTICE: Ensure the battery latch assembly is properly oriented. The indent for the screw should face up when installing the assembly.

This procedure assumes that you have completed the removal procedure Removing the Battery Latch Assembly.

1. Ensure that the battery latch spring is properly mounted on the guide post of the battery latch assembly.
2. Align the battery release button with the hole in the battery latch assembly, then press the button into place.
3. Replace the M2 x 3-mm screw that holds the battery release button in the battery latch assembly.
4. Align the guide post on the battery latch assembly with the slot on the base of the computer, then lower the latch assembly into place.

NOTICE: The battery release button is keyed to ensure proper alignment. If you feel resistance, check the alignment of the release button.

5. Replace the system board (see Replacing the System Board Assembly).
6. Connect the cable that secures the internal card with Bluetooth wireless technology to the system board (see Replacing the Card).
7. Replace the optical drive (see Replacing the Optical Drive).
8. Replace the palm rest (see Replacing the Palm Rest).
9. Replace the display assembly (see Replacing the Display Assembly).
10. Replace the keyboard (see Replacing the Keyboard).
11. Replace the hinge cover (see Replacing the Hinge Cover).
12. Replace the fan (see Replacing the Fan).
13. Replace the hard drive (see Replacing the Hard Drive).
14. Replace the WLAN card (see Replacing a WLAN Card).

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Memory

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Your computer has two user-accessible SODIMM sockets, both accessed from the bottom of the computer.

You can increase your computer memory by installing memory modules on the system board. See "Specifications" in your *Setup and Quick Reference Guide* for information on the memory supported by your computer. Install only memory modules that are intended for your computer.

NOTE: Memory modules purchased from Dell are covered under your computer warranty.

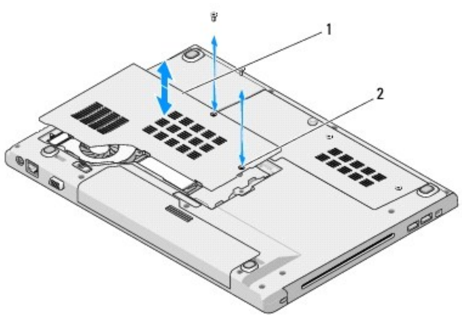
Removing a Memory Module

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

1. Follow the procedures in Before Working on Your Computer.

2. Turn the computer upside down.

3. Remove the two screws that secure the memory cover, then remove the cover and set it aside. (See Removing a Memory Module for an illustration of the memory cover.)



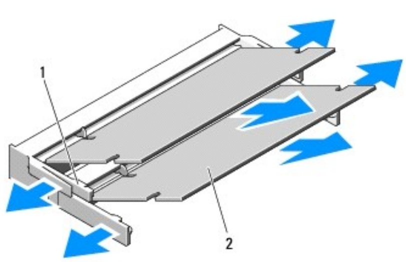
1	memory cover	2	screws (2)

NOTICE: To prevent damage to the memory module connector, do not use tools to spread the memory module securing clips.

4. Use your fingertips to carefully spread apart the securing clips on each end of the memory module connector until the memory module pops up.

5. Remove the memory module from the connector.

CAUTION: Handle the memory module by the card edges and avoid touching the components on the memory module.



1	securing clips (2)	2	memory module

Replacing a Memory Module

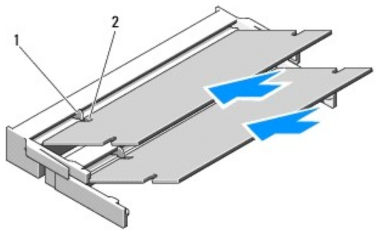
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing a Memory Module.

1. Align the notch in the module edge connector with the tab in the connector slot.

2. Slide the module firmly into the slot at a 45-degree angle, and rotate the module down until it clicks into place. If you do not feel the click, remove the module and reinstall it.

NOTE: If the memory module is not installed properly, the computer may not boot. No error message indicates this failure.



1	tab	2	notch

NOTICE: If the cover is difficult to close, remove the module and reinstall it. Forcing the cover to close may damage your computer.

3. Replace the memory cover and tighten the screws.

4. Insert the battery into the battery bay, or connect the AC adapter to your computer and an electrical outlet.

5. Turn on the computer.

As the computer boots, it detects the additional memory and automatically updates the system configuration information.

To confirm the amount of memory installed in the computer:

- In the Microsoft® Windows® XP operating system, right-click the **My Computer** icon on your desktop, and click **Properties**→ **General**.
- In Microsoft Windows Vista®, click **Start** → **Help and Support**→ **Dell System Information**.

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Wireless Local Area Network (WLAN) Card

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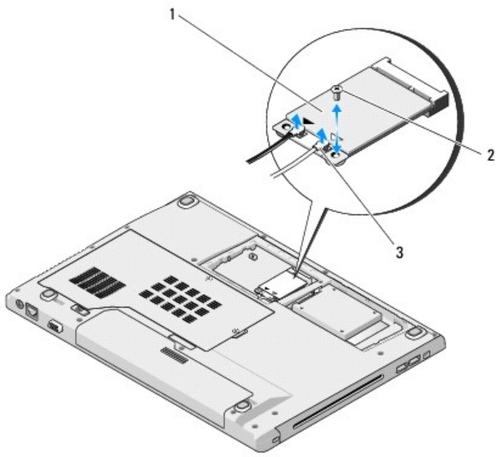
- Removing a WLAN Card
- Replacing a WLAN Card

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

Your computer supports a WLAN card. If you ordered a WLAN card with your computer, the card is already installed.

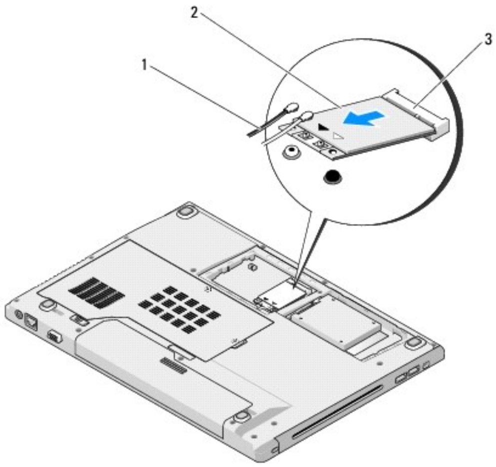
Removing a WLAN Card

1. Follow the procedures in Before Working on Your Computer.
2. Turn the computer upside down.
3. Remove the hard drive compartment cover.
4. Rotate each antenna cable until it is positioned away from the WLAN card and then pull gently on the cable to disconnect it.
5. Remove the M2 x 3-mm screw that secures the WLAN card.



1	WLAN card	2	M2 x 3-mm screw (1)
3	antenna cables (2)		

6. Slide the WLAN card at a 45-degree angle out of its connector.



1	antenna cables (2)	2	WLAN card
3	system board connector		

Replacing a WLAN Card

NOTICE: The connectors are keyed to ensure correct insertion. If you feel resistance, check the connectors on the card and on the system board, and realign the card.

NOTICE: To avoid damage to the WLAN card, never place cables under the card.

This procedure assumes that you have completed the removal procedure Removing a WLAN Card.

1. Insert the WLAN card connector into the system board connector at a 45- degree angle.

2. Connect the antenna cables to the WLAN card that you are installing.

   If the WLAN card has two triangles on the label (white and black), connect the white antenna cable to the connector labeled "main" (white triangle), and connect the black antenna cable to the connector labeled "aux" (black triangle).

   If the WLAN card has three triangles on the label (white, black, and gray), connect the white antenna cable to the white triangle, connect the black antenna cable to the black triangle, and connect the gray antenna cable to the gray triangle.

3. Replace the M2 x 3-mm screw that secures the WLAN card.

4. Replace the tape that secures the two antenna cables on top of the WLAN card.

5. Replace the hard drive compartment cover.

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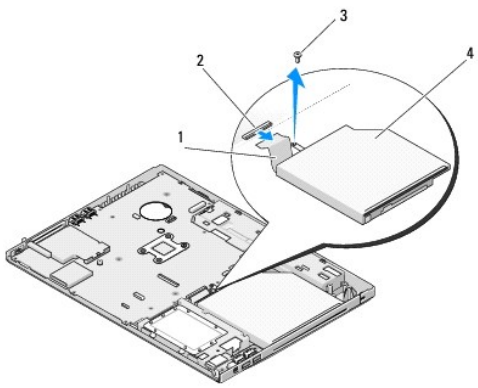
Optical Drive

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Removing the Optical Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

1. Follow the procedures in Before Working on Your Computer.
2. Remove the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the hinge cover (see Removing the Hinge Cover).
5. Remove the keyboard (see Removing the Keyboard).
6. Remove the display assembly (see Removing the Display Assembly).
7. Remove the palm rest (see Removing the Palm Rest).
8. Remove the M2 x 5-mm screw from the optical drive.
9. Lift the back end of the drive out and disconnect the optical drive cable from the connector on the system board.



1	optical drive cable	2	optical drive connector
3	M2 x 5-mm screw (1)	4	optical drive

Replacing the Optical Drive

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Optical Drive.

1. Connect the optical drive cable to the connector on the system board.
2. Replace the M2 x 5-mm screw to secure the optical drive to the system board.
3. Replace the palm rest (see Replacing the Palm Rest).

4. Replace the display assembly (see Replacing the Display Assembly).

5. Replace the keyboard (see Replacing the Keyboard).

6. Replace the hinge cover (see Replacing the Hinge Cover).

7. Replace the WLAN card (see Replacing a WLAN Card).

8. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

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Palm Rest

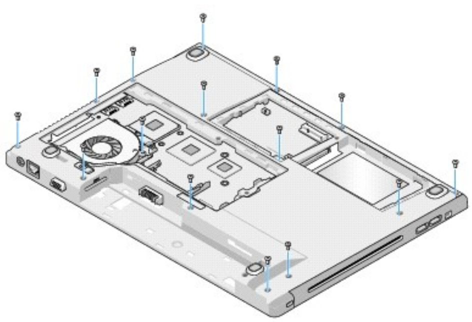
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Removing the Palm Rest

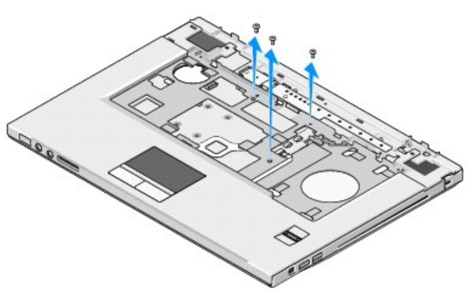
CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in [Before Working on Your Computer](#).
2. Remove the hard drive cover. See [Removing the Hard Drive](#) for an illustration of the hard drive cover.
3. Remove any cards or blanks installed in the ExpressCard slot and the 8-in- 1 card slot.
4. Remove the WLAN card (see [Removing a WLAN Card](#)).
5. Remove the hinge cover (see [Removing the Hinge Cover](#)).
6. Remove the keyboard (see [Removing the Keyboard](#)).
7. Remove the display assembly (see [Removing the Display Assembly](#)).
8. Remove the M2.5 x 5-mm screw labeled with a "P" from the fan.
9. Remove the fourteen M2.5 x 8-mm screws from the bottom of the computer.

   NOTE: The screw locations may vary slightly from the image shown below.



10. Turn the computer over and remove the three M2.5 x 5-mm screws that secure the top of the palm rest.



11. Disconnect the multimedia-button pad connector from the system board.

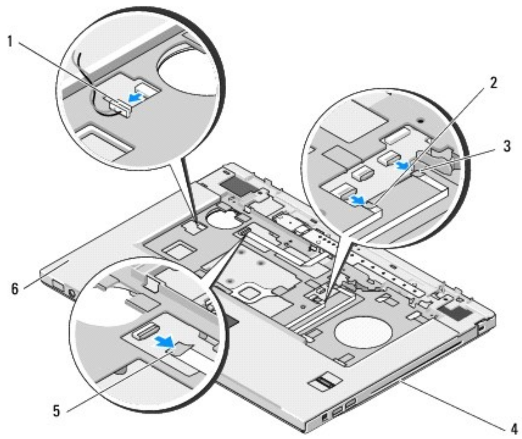
12. Disconnect the touch pad connector from the system board.

13. Disconnect the fingerprint reader connector from the system board.

NOTICE: Do not use force to separate the palm rest from the computer. If you encounter resistance, gently flex or apply pressure to the palm rest, or move along the edge, working away from the area of resistance, until the palm rest is free.

14. Disconnect the speaker connector from the palm rest. Remove tape as necessary.

15. Moving from left to right, carefully lift the palm rest along the rear edge, near the hinge brackets, and gently lift the palm rest.



1	speaker connector	2	touch pad connector
3	fingerprint reader connector	4	computer base
5	multimedia panel connector	6	palm rest

Replacing the Palm Rest

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

NOTICE: Ensure that the touch pad cable and the cable for the internal card with Bluetooth® wireless technology are properly routed before snapping the palm rest into place.

This procedure assumes that you have completed the removal procedure Removing the Palm Rest.

1. Align the palm rest with the computer base and gently snap it into place.

2. Connect the speaker connector to the under side of the palm rest.

3. Connect the touchpad connector to the system board.

4. Connect the multimedia-button pad connector to the system board.

5. Connect the finger print reader connector to the system board.

6. Replace the three M2.5 x 5-mm screws on the top of the palm rest.

7. Turn the computer upside down and replace the fourteen M2.5 x 8-mm screws on the bottom of the computer to secure the palm rest.

8. Replace the M2.5 x 5-mm screw in the hole labeled with a "P" on the fan.

9. Replace the display assembly (see Replacing the Display Assembly).

10. Replace the keyboard (see Replacing the Keyboard).

11. Replace the hinge cover (see Replacing the Hinge Cover).

12. Replace the WLAN card (see Replacing a WLAN Card).

13. Replace the hard drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

14. Replace any blanks you removed from in the ExpressCard slot and the 8- in-1 card slot.

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Power Button and Multimedia Button Pads

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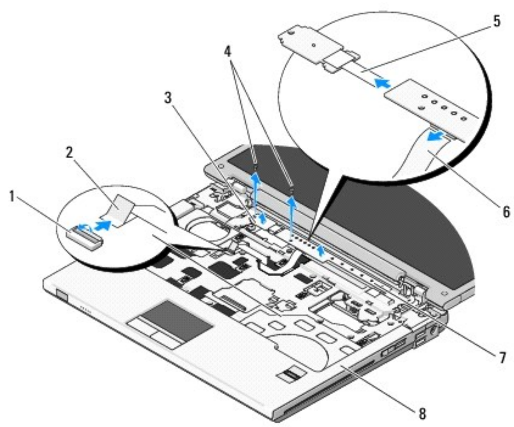
- [Removing the Power Button and Multimedia Button Pads](#)
- [Replacing the Power Button and Multimedia Button Pads](#)

Removing the Power Button and Multimedia Button Pads

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTICE: The power button and multimedia button pads should be removed and reinstalled as a single unit.

1. Follow the procedures in [Before Working on Your Computer](#).
2. Remove the hinge cover (see [Removing the Hinge Cover](#)).
3. Remove the keyboard (see [Removing the Keyboard](#)).
4. Disconnect the multimedia-button pad cable from the system board.
5. Remove the M2 x 3-mm screw that secures the power button pad to the palm rest.
6. Remove the M2 x 3-mm screw that secures the multimedia button pad to the palm rest.
7. Slide the power button pad to the left and lift the power button and multimedia button pads out of the computer in one movement.
8. Disconnect the power-button pad cable from the connector at the bottom of the multimedia button pad.



1	system board connector	2	multimedia-button pad cable
3	power button pad	4	M2 x 3-mm screws (2)
5	power-button pad cable	6	multimedia-button pad cable
7	multimedia panel	8	palm rest

Replacing the Power Button and Multimedia Button Pads

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTICE: The power button and multimedia button pads should be removed and reinstalled as a single unit.

This procedure assumes that you have completed the removal procedure Removing the Power Button and Multimedia Button Pads.

1. Connect the power-button pad cable in the connector on the bottom of the multimedia button pad.

2. Slide the power button pad to the right, positioning it under the tabs on the palm rest and aligning the screw holes.

3. Slide the multimedia button pad to the right, aligning it under the tab on the palm rest and aligning the screw holes.

4. Replace the M2 x 3-mm screw that secures the power button pad to the palm rest.

5. Replace the M2 x 3-mm screw that secures the multimedia button pad to the palm rest.

6. Connect the multimedia-button pad cable to the connector on the system board.

7. Replace the keyboard (see Replacing the Keyboard).

8. Replace the hinge cover (see Replacing the Hinge Cover).

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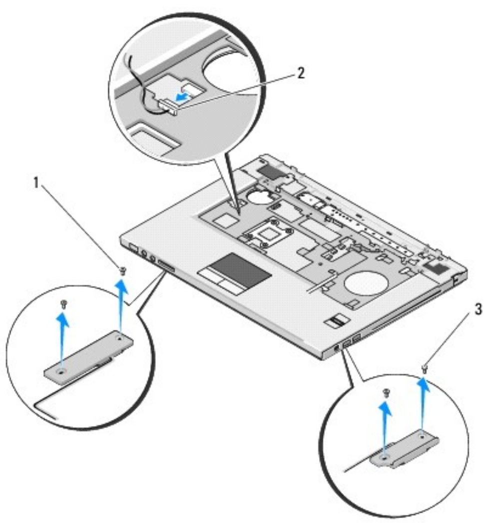
Speaker Assembly

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Removing the Speaker Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove the hard-drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.
3. Remove the WLAN card (see Removing a WLAN Card).
4. Remove the hinge cover (see Removing the Hinge Cover).
5. Remove the keyboard (see Removing the Keyboard).
6. Remove the display assembly (see Removing the Display Assembly).
7. Remove the palm rest (see Removing the Palm Rest).
8. Remove the four M2 x 3-mm screws from the speaker assembly.
9. Remove the speaker assembly.



1	M2.5 x 5-mm screws (2)	2	speaker connector
3	M2.5 x 5-mm screws (2)		

Replacing the Speaker Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

This procedure assumes that you have completed the removal procedure Removing the Speaker Assembly.

1. Align the guide holds in the speaker assembly with the guide posts on the base of the computer, then lower the assembly into place.
2. Replace the four M2.5 x 5-mm screws to secure the speaker assembly
3. Replace the palm rest (see Replacing the Palm Rest).
4. Replace the display assembly (see Replacing the Display Assembly).
5. Replace the keyboard (see Replacing the Keyboard).
6. Replace the hinge cover (see Replacing the Hinge Cover).
7. Replace the WLAN card (see Replacing a WLAN Card).
8. Replace the hard-drive cover. See Removing the Hard Drive for an illustration of the hard drive cover.

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System Board Assembly

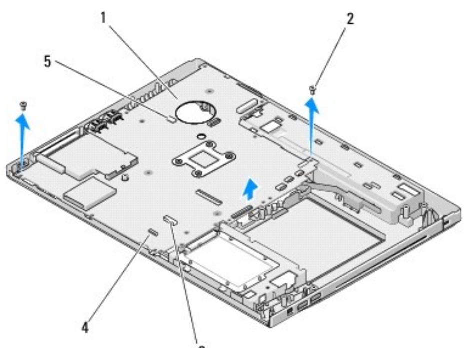
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The system board's BIOS chip contains the Service Tag, which is also visible on a barcode label on the base of the computer. The replacement kit for the system board includes media that provide a utility for transferring the Service Tag to the replacement system board.

Removing the System Board Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

1. Follow the instructions in Before Working on Your Computer.
2. Remove any cards or blanks installed in the ExpressCard slot and the 8-in- 1 card slot.
3. Remove the hard drive (see Removing the Hard Drive).
4. Remove the WLAN card (see Removing a WLAN Card).
5. Remove the fan (see Removing the Fan).
6. Remove the hinge cover (see Removing the Hinge Cover).
7. Remove the keyboard (see Removing the Keyboard).
8. Remove the display assembly (see Removing the Display Assembly).
9. Remove the palm rest (see Removing the Palm Rest).
10. Remove the optical drive (see Removing the Optical Drive).
11. Disconnect the 1394/USB daughter-card cable from the system board.
12. Remove the three M2.5 x 5-mm screws from the top of the system board.
13. Lift the right edge of the system board, and then carefully lift the system board out of the computer.



1	system board	2	M2.5 x 5-mm system board screws (3)
3	USB daughter-card cable connector	4	card with Bluetooth technology cable connector
5	speaker cable connector		

Replacing the System Board Assembly

CAUTION: Before you begin the following procedure, follow the safety instructions that shipped with your computer.

NOTICE: Ensure that any loose cables do not get caught beneath the system board.

This procedure assumes that you have completed the removal procedure Removing the System Board Assembly.

1. Insert the left side of the system board into the base of the computer at an angle until the connectors on the system board are aligned with the holes on the base of the computer, then carefully lower the system board into place.
2. Replace the three M2.5 x 5-mm screws on the system board.
3. Connect the 1394/USB daughter-card cable to the connector on the system board.
4. Replace the optical drive (see Replacing the Optical Drive).
5. Replace the palm rest (see Replacing the Palm Rest).
6. Replace the display assembly (see Replacing the Display Assembly).
7. Replace the keyboard (see Replacing the Keyboard).
8. Replace the hinge cover (see Replacing the Hinge Cover).
9. Replace the fan (see Replacing the Fan).
10. Replace the WLAN card (see Replacing a WLAN Card).
11. Replace the hard drive (see Replacing the Hard Drive).
12. Replace any blanks you removed from the ExpressCard slot and the 8-in-1 card slot.

NOTICE: Before turning on the computer, replace all screws and ensure that no stray screws remain inside the computer. Failure to do so may result in damage to the computer.

13. Turn on the computer.

NOTE: If you use a BIOS update program media to flash the BIOS, press <F12> before inserting the media in order to set the computer to boot from the media for one time only. Otherwise, you must enter the system setup program to change the default boot order.

14. Flash update the BIOS (see Flashing the BIOS for more information).
15. Enter the system setup program to update the BIOS on the new system board with the computer Service Tag. For information on the system setup program, see the *Dell™ Technology Guide* on your computer or at s**upport.dell.com**.

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NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates potential for property damage, personal injury, or death.

If you purchased a DELL™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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Troubleshooting

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- [Solving Problems](#)
- [Dell Technical Update Service](#)
- [Dell Support Utility](#)

Troubleshooting Tools

Diagnostic Lights

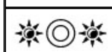
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

Your computer has three keyboard status lights located above the keyboard. During normal operation, the keyboard status lights display the current status (*on* or *off*) of the Num Lock, Caps Lock, and Scroll Lock features. If the computer starts without error, the lights flash, and then turn off. If the computer malfunctions, however, you can use the status of the lights to help identify the problem.

NOTE: After the computer completes POST, the Num Lock light may remain on, depending on your BIOS settings. For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or at **support.dell.com**.

Diagnostic Light Codes During POST

To troubleshoot a problem with your computer, read the sequence of the keyboard status lights in order from left to right (Num Lock, Caps Lock, and then Scroll Lock). If the computer malfunctions the individual lights display a status of either *On* , *Off* , or *Flashing* .

Light Pattern	Problem Description	Suggested Resolution
	No memory modules are detected.	- If two or more memory modules are installed, remove the modules (see [Removing a Memory Module](#)), then reinstall one module (see [Replacing a Memory Module](#)) and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. - If available, install working memory of the same type into your computer (see [Memory](#)). - If the problem persists, contact Dell Support.
	Memory modules are detected, but a memory failure has occurred.	- If two or more memory modules are installed, remove the modules (see [Removing a Memory Module](#)), then reinstall one module (see [Replacing a Memory Module](#)) and restart the computer. If the computer starts normally, continue to install additional memory modules (one at a time) until you have identified a faulty module or reinstalled all modules without error. - If available, install working memory of the same type into your computer (see [Memory](#)). - If the problem persists, contact Dell Support.
	A possible processor failure has occurred.	- Reseat the processor (see [Removing the Processor Module](#)). - If the problem persists, contact Dell Support.
	A possible graphics card/video failure has occurred.	- Reseat any installed graphics cards. - If available, install a working graphics card into your computer. - If the problem persists, contact Dell Support.
	A possible LCD failure has occurred.	- Reseat the LCD cable (see [Removing the Display Assembly](#)). - If the problem persists, contact Dell Support.
	A possible keyboard failure has occurred.	- Reseat the keyboard (see [Removing the Keyboard](#)). - If available, connect an external keyboard. - If the problem persists, contact Dell Support.
	A possible USB controller failure has occurred.	- Remove any USB devices. - If the problem persists, contact contact Dell Support.

Hardware Troubleshooter

If a device is either not detected during the operating system setup or is detected, but incorrectly configured, you can use the Hardware Troubleshooter to

resolve the incompatibility.

Windows XP:

1. Click **Start**→ **Help and Support**.
2. Type hardware troubleshooter in the search field and press <Enter> to start the search.
3. In the **Fix a Problem** section, click **Hardware Troubleshooter**.
4. In the **Hardware Troubleshooter** list, select the option that best describes the problem, and click **Next** to follow the remaining troubleshooting steps.

Windows Vista®:

1. Click the Windows Vista start button **, and click Help and Support.**
2. Type hardware troubleshooter in the search field and press <Enter> to start the search.
3. In the search results, select the option that best describes the problem and follow the remaining troubleshooting steps.

Dell Diagnostics

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

When to Use the Dell Diagnostics

If you experience a problem with your computer, perform the checks in Solving Problems, and then run the Dell Diagnostics before contacting Dell for assistance.

Start the Dell Diagnostics from your hard drive or from the *Drivers and Utilities* media provided with your computer.

NOTE: The *Drivers and Utilities* media is optional and may not ship with your computer.

NOTE: The Dell Diagnostics only operate on Dell computers.

Starting the Dell Diagnostics From Your Hard Drive

Before running the Dell Diagnostics, enter system setup to review your computer's configuration information, and ensure that the device you want to test is displayed in system setup and is active. For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or at **support.dell.com.**

The Dell Diagnostics is located on a separate diagnostic utility partition on your hard drive.

NOTE: If the computer is connected to a docking device (docked), undock it. See the documentation that came with your docking device for instructions.

NOTE: If your computer does not display a screen image, contact Dell Support.

1. Ensure that the computer is connected to an electrical outlet that is known to be working properly.
2. Press and hold the <Fn> key or the mute button then turn on your computer.

   NOTE: Alternatively, you can select **Diagnostics** from the one-time boot menu at startup to boot to the diagnostic utility partition and run the Dell Diagnostics.

   The computer runs the Pre-boot System Assessment (PSA), a series of initial tests of your system board, keyboard, display, memory, hard drive, etc.

   - During the assessment, answer any questions that appear.
   - If failures are detected during the Pre-boot System Assessment, write down the error code(s) and contact Dell Support.
   - If the Pre-boot System Assessment completes successfully, the following message appears: "Booting Dell Diagnostic Utility Partition. Press any key to continue."

   NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your *Drivers and Utilities* media (see Starting the Dell Diagnostics From the Drivers and Utilities Media).

3. Press any key to start the Dell Diagnostics from the diagnostics utility partition on your hard drive.
4. Press <Tab> to select **Test System** and then press <Enter>.

NOTE: It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to the previous menu.

5. At the Dell Diagnostics Main Menu, left-click with the touch pad/mouse, or press <Tab> and then <Enter>, to select the test you want to run (see Dell Diagnostics Main Menu).

NOTE: Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

6. After all tests have completed, close the test window to return to the Dell Diagnostics Main Menu.

7. Close the Main Menu window to exit the Dell Diagnostics and restart the computer.

NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your *Drivers and Utilities* media (see Starting the Dell Diagnostics From the Drivers and Utilities Media).

Starting the Dell Diagnostics From the Drivers and Utilities Media

Before running the Dell Diagnostics, enter system setup to review your computer's configuration information, and ensure that the device you want to test is displayed in system setup and is active. For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or at **support.dell.com.**

1. Insert the *Drivers and Utilities* media into the optical drive.

2. Restart your computer.

3. When the DELL logo appears, press <F12> immediately.

NOTE: Keyboard failure may result when a key is held down for extended periods of time. To avoid possible keyboard failure, press and release <F12> in even intervals to open the Boot Device Menu.

If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop, then shut down your computer and try again.

4. When the boot device list appears, use the up- or down- arrow keys to highlight **CD/DVD/CD-RW Drive** then press <Enter>.

NOTE: Using the one-time boot menu changes the boot sequence for the current boot only. Upon restart, the computer boots according to the boot sequence specified in system setup.

5. Press any key to confirm that you want to start from the CD/DVD.

If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop, then shut down your computer and try again.

6. Type 1 to **Run the 32 Bit Dell Diagnostics**.

7. At the **Dell Diagnostics Menu**, type 1 to select **Dell 32-bit Diagnostics for Resource CD (graphical user interface)**.

8. Press <Tab> to select **Test System** and then press <Enter>.

NOTE: It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to the previous menu.

9. At the Dell Diagnostics Main Menu, left-click with the mouse, or press <Tab> and then <Enter>, to select the test you want to run (see Dell Diagnostics Main Menu).

NOTE: Write down any error codes and problem descriptions exactly as they appear and follow the instructions on the screen.

10. After all tests have completed, close the test window to return to the Dell Diagnostics Main Menu.

11. Close the Main Menu window to exit the Dell Diagnostics and restart the computer.

12. Remove the *Drivers and Utilities* media from the optical drive.

Dell Diagnostics Main Menu

After the Dell Diagnostics loads the following menu appears:

Option	Function
Test Memory	Run the stand-alone memory test
Test System	Run system diagnostics
Exit	Exit the diagnostics

Press <Tab> to select the test you want to run and then press <Enter>.

NOTE: It is recommended that you select **Test System** to run a complete test on your computer. Selecting **Test Memory** initiates the extended memory test, which can take up to thirty minutes or more to complete. When the test completes, record the test results and then press any key to return to this menu.

After **Test System** is selected, the following menu appears:

Option	Function
Express Test	Performs a quick test of devices in the system. This typically can take 10 to 20 minutes. **NOTE:** The Express Test requires no interaction on your part. Run Express Test first to increase the possibility of tracing a problem quickly.
Extended Test	Performs a thorough check of devices in the system. This typically can take an hour or more. **NOTE:** The Extended Test periodically requires your input to answer specific questions.
Custom Test	Use to test a specific device or customize the tests to be run.
Symptom Tree	This option allows you to select tests based on a symptom of the problem you are having. This option lists the most common symptoms.

NOTE: It is recommended that you select **Extended Test** to perform a more thorough check of devices in the computer.

For any problem encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description exactly as it appears and follow the instructions on the screen. If you cannot resolve the problem, contact Dell Support.

NOTE: When contacting Dell Support, have your Service Tag ready. The Service Tag for your computer is located at the top of each test screen.

The following tabs provide additional information for tests run from the Custom Test or Symptom Tree option:

Tab	Function
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and any requirements for running the test.
Configuration	Displays the hardware configuration for the selected device. The Dell Diagnostics obtains configuration information for all devices from System Setup, memory, and various internal tests, and displays the information in the device list in the left pane of the screen. **NOTE:** The device list may not display the names of all components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test, if applicable, by changing the test settings.

Error Messages

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

If the error message is not listed, see the documentation for the operating system or the program that was running when the message appeared.

A filename cannot contain any of the following characters:
\ / : * ? " < > | — Do not use these characters in filenames.

A required .DLL file was not found — The program that you are trying to open is missing an essential file. To remove and then reinstall the program:

Windows XP:

1. Click **Start→ Control Panel→ Add or Remove Programs→ Programs and Features**.
2. Select the program you want to remove.
3. Click **Uninstall**.
4. See the program documentation for installation instructions.

Windows Vista:

1. Click **Start** **→ Control Panel→ Programs→ Programs and Features**.
2. Select the program you want to remove.
3. Click **Uninstall**.
4. See the program documentation for installation instructions.

drive letter **:\ is not accessible. The device is not ready —** The drive cannot read the disk. Insert a disk into the drive and try again.

Insert bootable media — Insert a bootable floppy disk, CD, or DVD.

Non-system disk error — Remove the floppy disk from the floppy drive and restart your computer.

Not enough memory or resources. Close some programs and try again — Close all windows and open the program that you want to use. In some cases, you may have to restart your computer to restore computer resources. If so, run the program that you want to use first.

Operating system not found — Contact Dell Support.

Solving Problems

Follow these tips when troubleshooting your computer:

- If you added or removed a part before the problem started, review the installation procedures and ensure that the part is correctly installed.
- If a peripheral device does not work, ensure that the device is properly connected.
- If an error message appears on the screen, write down the exact message. This message may help support personnel diagnose and fix the problem(s).
- If an error message occurs in a program, see the program's documentation.

NOTE: The procedures in this document were written for the Windows default view, so they may not apply if you set your Dell computer to the Windows Classic view.

Battery Problems

CAUTION: There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

Drive Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

Ensure that Microsoft® Windows® Recognizes the drive —

Windows XP:

- Click **Start and click My Computer**.

Windows Vista:

- Click **Start** and click **Computer**.

If the drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Test the drive —

- Insert another disc to eliminate the possibility that the original drive is defective.
- Insert a bootable floppy disk and restart the computer.

Clean the drive or disk —

For information on cleaning your computer, see the *Dell™ Technology Guide* on your computer or at **support.dell.com**.

Check the cable connections

Run the Hardware Troubleshooter —

See Hardware Troubleshooter.

Run the Dell Diagnostics —

See Dell Diagnostics.

Optical drive problems

NOTE: High-speed optical drive vibration is normal and may cause noise, which does not indicate a defect in the drive or the media.

NOTE: Because of different regions worldwide and different disc formats, not all DVD titles work in all DVD drives.

Adjust the Windows volume control —

- Click the speaker icon in the lower-right corner of your screen.
- Ensure that the volume is turned up by clicking the slidebar and dragging it up.
- Ensure that the sound is not muted by clicking any boxes that are checked.

Check the speakers and subwoofer —

See Sound and Speaker Problems.

Problems writing to an optical drive

Close other programs —

The optical drive must receive a steady stream of data during the writing process. If the stream is interrupted, an error occurs. Try closing all programs before you write to the optical.

Turn off standby mode in Windows before writing to a disc —

For information about setting power options, see the *Dell™ Technology Guide* on your computer or at **support.dell.com**. You can also search for the keyword *standby* in Windows Help and Support for information on power management modes.

Hard drive problems

Run Check Disk —

Windows XP:

1. Click **Start and click My Computer**.
2. Right-click **Local Disk C:**.
3. Click **Properties→ Tools→ Check Now**.
4. Click **Scan for and attempt recovery of bad sectors and click Start**.

Windows Vista:

1. Click **Start** and click **Computer**.
2. Right-click **Local Disk C:**.
3. Click **Properties**→ **Tools**→ **Check Now**.

   The **User Account Control** window may appear. If you are an administrator on the computer, click **Continue**; otherwise, contact your administrator to continue the desired action.

4. Follow the instructions on the screen.

IEEE 1394 Device Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTE: Your computer supports only IEEE 1394a standard.

Ensure that the cable for the IEEE 1394 device is properly inserted into the device and into the connector on the computer

Ensure that the IEEE 1394 device is enabled in system setup — For more information on using the system setup program, see the *Dell™ Technology Guide* on your computer or at **support.dell.com.**

Ensure that the IEEE 1394 device is recognized by Windows —

Windows XP:

1. Click **Start and click Control Panel**.
2. Under **Pick a Category**, click **Performance and Maintenance**→ **System**→ **System Properties** → **Hardware**→ **Device Manager**.

Windows Vista:

1. Click **Start** → **Control Panel**→ **Hardware and Sound**.
2. Click **Device Manager.**

If your IEEE 1394 device is listed, Windows recognizes the device.

If you have problems with a Dell IEEE 1394 device —

Contact Dell Support.

If you have problems with an IEEE 1394 device not provided by Dell — Contact the IEEE 1394 device manufacturer.

Lockups and Software Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

The computer does not start up

Check the diagnostic lights —

See Power Problems.

Ensure that the power cable is firmly connected to the computer and to the electrical outlet

The computer stops responding

NOTICE: You may lose data if you are unable to perform an operating system shutdown.

Turn the computer off — If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds (until the computer turns off), and then restart your computer.

A program stops responding

End the program —

1. Press <Ctrl><Shift><Esc> simultaneously to access the Task Manager.
2. Click the **Applications** tab.
3. Click to select the program that is no longer responding.
4. Click **End Task**.

A program crashes repeatedly

NOTE: Most software includes installation instructions in its documentation or on a floppy disk, CD, or DVD.

Check the software documentation —

If necessary, uninstall and then reinstall the program.

A program is designed for an earlier Windows operating system

Run the Program Compatibility Wizard —

Windows XP:

The Program Compatibility Wizard configures a program so that it runs in an environment similar to non-XP operating system environments.

1. Click **Start**→ **All Programs**→ **Accessories**→ **Program Compatibility Wizard**→ **Next**.
2. Follow the instructions on the screen.

Windows Vista:

The Program Compatibility Wizard configures a program so that it runs in an environment similar to non-Windows Vista operating system environments.

1. Click **Start** → **Control Panel**→ **Programs**→ **Use an older program with this version of Windows.**
2. In the welcome screen, click **Next**.
3. Follow the instructions on the screen.

A solid blue screen appears

Turn the computer off —

If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds (until the computer turns off), and then restart your computer.

Other software problems

Check the software documentation or contact the software manufacturer for troubleshooting information —

- Ensure that the program is compatible with the operating system installed on your computer.
- Ensure that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
- Ensure that the program is installed and configured properly.
- Verify that the device drivers do not conflict with the program.
- If necessary, uninstall and then reinstall the program.

Back up your files immediately

Use a virus-scanning program to check the hard drive, floppy disks, CDs, or DVDs

Save and close any open files or programs and shut down your computer through the Start menu

Memory Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

If you receive an insufficient memory message —

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- See the software documentation for minimum memory requirements. If necessary, install additional memory (see Replacing a Memory Module).
- Reseat the memory modules (see Memory) to ensure that your computer is successfully communicating with the memory.
- Run the Dell Diagnostics (see Dell Diagnostics).

If you experience other memory problems —

- Reseat the memory modules (see Memory) to ensure that your computer is successfully communicating with the memory.
- Ensure that you are following the memory installation guidelines (see Replacing a Memory Module).
- Ensure that the memory you are using is supported by your computer. For more information about the type of memory supported by your computer, see the *Setup and Quick Reference Guide* for your computer at **support.dell.com**.
- Run the Dell Diagnostics (see Dell Diagnostics).

Power Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

If the power light is green and the computer is not responding — See Diagnostic Lights.

If the power light is off — The computer is either turned off or is not receiving power.

- Reseat the power cable in the power connector on the back of the computer and the electrical outlet.
- Bypass power strips, power extension cables, and other power protection devices to verify that the computer turns on properly.
- Ensure that any power strips being used are plugged into an electrical outlet and are turned on.
- Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Eliminate interference — Some possible causes of interference are:

- Power, keyboard, and mouse extension cables
- Too many devices connected to the same power strip
- Multiple power strips connected to the same electrical outlet

Sound and Speaker Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

No sound from speakers

NOTE: The volume control in MP3 and other media players may override the Windows volume setting. Always check to ensure that the volume on the media player(s) has not been turned down or off.

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Disconnect headphones from the headphone connector — Sound from the speakers is automatically disabled when headphones are connected to the computer's front-panel headphone connector.

Eliminate possible interference — Turn off nearby fans, fluorescent lights, or halogen lamps to check for interference.

Run the Hardware Troubleshooter — See Hardware Troubleshooter.

No sound from headphones

Check the headphone cable connection — Ensure that the headphone cable is securely inserted into the headphone connector. See the *Setup and Quick Reference Guide* for your computer at **support.dell.com**.

Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.

Video and Display Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

NOTICE: If your computer came with a PCI graphics card installed, removal of the card is not necessary when installing additional graphics cards; however, the card is required for troubleshooting purposes. If you remove the card, store it in a safe and secure location. For information about your graphics card, go to support.dell.com.

Check the diagnostic lights —

See Diagnostic Lights.

Check the display settings —

See the *Dell™ Technology Guide* on your computer or at **support.dell.com**.

Adjust the Windows display settings —

Windows XP:

1. Click **Start**→ **Control Panel**→ **Appearance and Themes**.
2. Click the area you want to change or click the **Display** icon.
3. Try different settings for **Color quality** and **Screen resolution**.

Windows Vista:

1. Click **Start** → **Control Panel**→ **Hardware and Sound**→ **Personalization**→ **Display Settings**.
2. Adjust **Resolution** and **Colors settings,** as needed.

Only part of the display is readable

Connect an external monitor —

1. Shut down your computer and connect an external monitor to the computer.

2. Turn on the computer and the monitor and adjust the monitor brightness and contrast controls.

If the external monitor works, the computer display or video controller may be defective. Contact Dell Support.

Dell Technical Update Service

The Dell Technical Update service provides proactive e-mail notification of software and hardware updates for your computer. The service is free and can be customized for content, format, and how frequently you receive notifications.

To enroll for the Dell Technical Update service, go to **support.dell.com/technicalupdate**.

Dell Support Utility

The Dell Support Utility is installed on your computer and available from the Dell Support, , icon on the taskbar or from the **Start** button. Use this support utility for self-support information, software updates, and health scans of your computing environment.

Accessing the Dell Support Utility

Access the Dell Support Utility from the icon on the taskbar or from the **Start** menu.

If the Dell Support icon does not appear in your taskbar:

1. Click **Start**→ **All Programs**→ **Dell Support**→ **Dell Support Settings**.

2. Ensure that the **Show icon on the taskbar** option is checked.

NOTE: If the Dell Support Utility is not available from the **Start** menu, go to **support.dell.com** and download the software.

The Dell Support Utility is customized for your computing environment.

The icon in the taskbar functions differently when you click, double-click, or right-click the icon.

Clicking the Dell Support Icon

Click or right-click the icon to perform the following tasks:

- Check your computing environment.
- View the Dell Support Utility settings.
- Access the help file for the Dell Support Utility.
- View frequently asked questions.
- Learn more about the Dell Support Utility.
- Turn the Dell Support Utility off.

Double-Clicking the Dell Support Icon

Double-click the icon to manually check your computing environment, view frequently asked questions, access the help file for the Dell Support Utility, and view Dell Support settings.

For more information about the Dell Support Utility, click the question mark (**?**) at the top of the **Dell™ Support** screen.

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